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09/752,392	12/29/2000	Tim Olson	1575-01	9539

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EXAMINER

CHU, CHRIS C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 10/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/752,392

Applicant(s)

OLSON ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 - 35 and 37 is/are rejected.
- 7) ☒ Claim(s) 3 and 36 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: on page 14, line 31

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of the specification refers to a communications system “60” which is not referenced in the figures. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Specification

5. The disclosure is objected to because of the following informalities: On page 8, line 13, “the” should be --an--.

Appropriate correction is required.

Claim Objections

6. Claims 3, 8, 19, 30, 36 and 37 are objected to because of the following informalities:

In claims 3 and 36, remove extra spaces between “s(t)” and next phrase.

In claims 8 and 37, remove extra spaces between “specified in” and next phrase.

In claim 19, line 6, “the transmission channel” should be --a transmission channel--.

In claim 30, “comprising” should be “comprising:”. Further, remove an empty line before “(a) ...”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 4, 6 ~ 12, 16 ~ 23, 27 ~ 35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodman.

Regarding claim 1, Goodman discloses in Figs. 1a, 2, 4 and 4a, column 14, lines 27 ~ 29 and column 32, lines 21 ~ 29 a method for designing a filter (447) for multiple access communications system which minimizes crosstalk between channels comprising the step of identifying signals. Further, the limitation “having a property by which the autocorrelation function associated with said signals decay rapidly from the central lobe, that is, at a higher than 1/x rate which is typical of a wavelength division multiplexing communications system” is functional language which does not differentiate the claimed method from Goodman.

Regarding claim 2, Goodman discloses in Figs. 1a, 2, 4 and 4a, column 14, lines 27 ~ 29 and column 32, lines 21 ~ 29 a method of designing a filter (447) for a multiple access communications system which minimizes crosstalk between channels comprising the step of

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identifying signals $s_2(t)$. Further, the limitation "having a first property by which the autocorrelation function associated with said $s_2(t)$ signals decay rapidly from the central lobe, that is, at a higher than $1/x$ rate which is typical of a wavelength division multiplexing communications system and having a second property in which the zero points of the autocorrelations function have high order multiplicities" is functional language which does not differentiate the claimed method from Goodman.

Regarding claim 4, Goodman discloses in Figs. 1a, 2, 3a, 3b, 4 and 4a, column 14, lines 27 ~ 29 and column 32, lines 21 ~ 29 $s(t)$ being a sinc function.

Regarding claim 6, Goodman discloses in Figs. 1a, 2, 3a, 3b, 4 and 4a, column 14, lines 27 ~ 29 and column 32, lines 21 ~ 29 $s(t)$ being selected from any variety of wavelets at any individual scale.

Regarding claim 7, Goodman discloses in Figs. 1a, 2, 3a, 3b, 4 and 4a, column 14, lines 27 ~ 29 and column 32, lines 21 ~ 29 $s(t)$ being any function whose translates are periodically orthogonal to $s(t)$.

Regarding claim 8, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 a method of filtering a signal of a communications system which minimizes crosstalk between channels comprising the steps of:

- (a) creating a signal (407) from a source of modulated pulses (428);
- (b) filtering (447) said signal of modulated pluses with a filter designed in accordance with the method specified in claim 2;
- (c) coupling said filtered modulated pulses onto the transmission channel for said communication system;

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- (d) receiving said coupled filtered modulated pulses from said transmission channel with a matched filter (423) designed in accordance with the method specified in claim 2;
- (e) detecting (426') said signal from said matched filter.

Regarding claim 9, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said source of modulated pulses producing signals which are relatively stable in time.

Regarding claim 10, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said source of modulated pulses producing signals which have known variants.

Regarding claim 11, Goodman discloses in column 3, lines 41 ~ 45 said filter being a fiber optic filter.

Regarding claim 12, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said filter comprising in-fiber gratings.

Regarding claim 16, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said matched filter searching for said signal that was originally transmitted.

Regarding claim 17, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said filter being specifically designed for said signals.

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Regarding claim 18, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said matched filter being specifically designed for said signal.

Regarding claim 19, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 a method of filtering a signal of a communications system which minimizes crosstalk between channels comprising the steps of:

- (a) creating a signal (a signal after 447a) from a source of modulated pulses (447a);
- (b) filtering (447c) said signal of modulated pulses with a filter designed in accordance with the method specified in claim 6;
- (c) coupling (447) said filtered modulated pulses onto the transmission channel (421) for said communication system;
- (d) receiving (423) said coupled filtered modulated pulses from said transmission channel with a matched filter (423c) designed in accordance with a method for designing a filter for multiple access communications system which minimizes crosstalk between channels comprising the step of identifying signals;
- (e) detecting (433) said signal from said matched filter.

Further, the limitation “having a property by which the autocorrelation function associated with said signals decay rapidly from the central lobe, that is, at a higher than $1/x$ rate which is typical of a wavelength division multiplexing communications system” is functional language which does not differentiate the claimed method from Goodman.

Regarding claim 20, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said source of modulated pulses producing signals which are relatively stable in time.

Regarding claim 21, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said source of modulated pulses producing signals which have known variants.

Regarding claim 22, Goodman discloses in column 3, lines 41 ~ 45 said filter being a fiber optic filter.

Regarding claim 23, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said filter comprising in-fiber gratings.

Regarding claim 27, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said matched filter searching for said signal that was originally transmitted.

Regarding claim 28, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said filter being specifically designed for said signals.

Regarding claim 29, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said matched filter being specifically designed for said signal.

Regarding claim 30, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 an electromagnetic matched

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filter based multiple access system for a communications system which minimizes crosstalk between channels comprising:

- (a) a source of modulated pulses (a signal after 447a) from a digital data stream;
- (b) a first filter (447c) for shaping the modulated pulse into a desired pulse for transmission across the communication medium;
- (c) a transmission medium (421) which is accurately modeled;
- (d) a second filter (423c) which is matched to the pulse which exits the communications medium; and
- (e) a detector (433) which converts the modulated pulse stream into the original digital data stream.

Regarding claim 31, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said first and second filters being identical.

Regarding claim 32, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said first filter being designed in accordance with a method comprising the step of identifying signals $s_2(t)$. Further, the limitation “having a first property by which the autocorrelation function associated with said $s_2(t)$ signals decay rapidly from the central lobe, that is, at a higher than $1/x$ rate which is typical of a wavelength division multiplexing communications system and having a second property in which the zero points of the autocorrelations function have high order multiplicities” is functional language which does not differentiate the claimed method from Goodman.

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Regarding claim 33, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 $s(t)$ being any function whose translates are periodically orthogonal to $s(t)$.

Regarding claim 34, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 said second filter being designed in accordance with a method comprising the step of identifying signals $s_2(t)$. Further, the limitation "having a first property by which the autocorrelation function associated with said $s_2(t)$ signals decay rapidly from the central lobe, that is, at a higher than $1/x$ rate which is typical of a wavelength division multiplexing communications system and having a second property in which the zero points of the autocorrelations function have high order multiplicities" is functional language which does not differentiate the claimed method from Goodman.

Regarding claim 35, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 $s(t)$ being any function whose translates are periodically orthogonal to $s(t)$.

Regarding claim 37, Goodman discloses in Figs. 1a, 2, 4, 4a, 5a and 6a, column 14, lines 27 ~ 29, column 32, lines 21 ~ 29 and column 40, lines 47 ~ 53 the first filter being designed in accordance with a method comprising the step of:

- (jj) creating a signal (a signal after 447a) from a source of modulated pulses (447a);
- (kk) filtering (447c) the signal of modulated pulses with a filter designed in accordance with the method specified in claim 2;
- (ll) coupling (447) the filtered modulated pluses onto the transmission channel (421) for the communication system;

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(mm) receiving (423) the coupled filtered modulated pulses from the transmission channel with a matched filter (423c) designed in accordance with the method specified in claim 2;

(nn) detecting (433) the signal from the matched filter.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman in view of Coifman et al.

Regarding claim 5, Goodman discloses the claimed invention except for s(t) being a signal whose autocorrelation function is a **Coifman Meyer window**. However, Coifman et al. teaches in column 21, lines 60 ~ 64 s(t) being a signal whose autocorrelation function is a **Coifman Meyer window**. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Goodman by using the **Coifman Meyer window** as taught by Coifman et al. The ordinary artisan would have been motivated to modify Goodman in the manner described above for at least the purpose of providing a relation to wave packets over R (column 21, lines 60 ~ 62).

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11. Claims 13 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman in view of Morey et al.

Regarding claims 13 and 24, Goodman discloses the claimed invention except for said filter comprising Bragg gratings. However, Morey et al. teaches in column 3, line 42 a filter comprising Bragg gratings. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Goodman by using the Bragg gratings for the filter as taught by Morey et al. The ordinary artisan would have been motivated to modify Goodman in the manner described above for at least the purpose of changing the reflected or transmission blocked wavelength (column 3, lines 35 ~ 36).

12. Claims 14 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman in view of Choy et al.

Regarding claims 14 and 25, Goodman discloses the claimed invention except for said filter comprising thin film filters. However, Choy et al. teaches in column 1, lines 22 and 23 a filter comprising thin film filters. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Goodman by using the thin film filters for the filter as taught by Choy et al. The ordinary artisan would have been motivated to modify Goodman in the manner described above for at least the purpose of providing a spectral selectivity that is predetermined in accordance with the wavelengths in use (column 1, lines 23 ~ 25).

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13. Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman in view of Suzuki et al.

Regarding claims 15 and 26, Goodman discloses the claimed invention except for said filter comprising spatial light modulation filters. However, Suzuki et al. teaches in column 21, lines 13 ~ 15 a filter comprising spatial light modulation filters. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Goodman by using the spatial light modulation filters for the filter as taught by Suzuki et al. The ordinary artisan would have been motivated to modify Goodman in the manner described above for at least the purpose of providing an excellent color image having a high contrast ratio and a high color purity (column 21, lines 16 ~ 19).

Allowable Subject Matter

14. Claims 3 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3 and 36 contain allowable subject matter because none of references of record teach or suggest, either singularly or in combination, at least determining the Fourier transform, $H(f)$, of a first autocorrelation function of $s(t)$ in accordance with the equation $H(f) = |S(f)|^2$ and taking a **inverse Fourier transform of $S_2(f)$** .

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yang et al., Wagner et al., Masui et al., Kim et al., Natali, Pastor et al., Slobodnik, Jr., Choi et al. and Ebringer et al. disclose a multiple access communications.

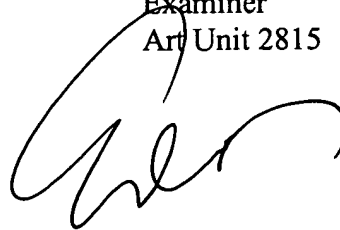
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

c.c.
October 6, 2003

Chris C. Chu
Examiner
Art Unit 2815



EDDIE LEE
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